CLAIMS

1. A method of regulating aneurysm formation, growth and/or stability comprising:

identifying an aneurysm;

endovascularly administering to the aneurysm an effective amount of a first composition comprising a matrix material and a second composition, such that the first and second compositions remain separate during administration and wherein at least one of the first and second compositions comprise cells;

mixing the first and second compositions at the location of the aneurysm to form a polymer scaffold comprising said cells.

2. The method of claim 1, wherein the endovascular administration is performed via one or more microcatheters.

3. The method of claim 1, wherein the scaffold is placed across an ostium of the aneurysm.

4. The method of claim 1, wherein the cells expand and migrate out of the scaffold to the surrounding tissue.

5. The method of claim 1, wherein the cells are autologous cells.

6. The method of claim 5, wherein the cells are selected from the group consisting of vascular cells, endothelial cells and stem cells.

7. The method of claim 6, wherein the cells are endothelial cells.

8. The method of claim 4, wherein the cells form a confluent layer.

9. The method of claim 8, wherein the confluent cell layer is integrated into the existing cell wall.

10. The method of claim 9, wherein the integrated, confluent cell layer forms a neoendothelium across the ostium.

11. The method of claim 1, wherein the matrix material comprises one or more materials selected from the following: fibrin, fibrinogen, collagen, polyorthoesters, polyvinyl alcohol, polyamides, polycarbonates, polyvinyl pyrrolidone, marine adhesive proteins, cyanoacrylates, analogs, mixtures, combinations and derivatives of the above.

12. The method of claim 11, wherein the matrix material comprises fibrinogen.

13. The method of claim 1, wherein the second composition comprises one or more of enzymes, ions, growth factors, and biologic agents.

14. The method of claim 13, wherein the second composition comprises thrombin and calcium.

15. The method of claim 1, wherein the method is performed in conjunction with at least one additional therapy for treating aneurysms.

16. The method of claim 15, wherein the additional therapy comprises an aneurysm packing treatment.

17. A method of increasing endothelialization across an aneurysm ostium comprising:

identifying an aneurysm;

endovascularly administering to the aneurysm an effective amount of a first composition comprising a matrix material and a second composition, such that the first and second compositions remain separate during the administration and wherein at least one of the first and second compositions comprise cells;

mixing the first and second compositions at the location of the aneurysm to form a polymer scaffold comprising said cells.

18. The method of claim 17, wherein the endovascular administration is performed via one or more microcatheters.

19. The method of claim 17, wherein the scaffold is placed across an ostium of the aneurysm.

20. The method of claim 17, wherein the cells expand and migrate out of the scaffold to the surrounding tissue.

21. The method of claim 17, wherein the cells are autologous cells.

22. The method of claim 21, wherein the cells are selected from the group consisting of vascular cells, endothelial cells and stem cells.

23. The method of claim 22, wherein the cells are endothelial cells.

24. The method of claim 20, wherein the cells form a confluent layer.

25. The method of claim 24, wherein the confluent cell layer is integrated into the existing cell wall.

26. The method of claim 25, wherein the integrated, confluent cell layer forms a neoendothelium across the ostium.

27. The method of claim 17, wherein first matrix material comprises one or more matrix materials selected from the following: fibrin, fibrinogen, collagen, polyorthoesters, polyvinyl alcohol, polyamides, polycarbonates, polyvinyl pyrrolidone, marine adhesive proteins, cyanoacrylates, analogs, mixtures, combinations and derivatives of the above.

28. The method of claim 27, wherein matrix material comprises fibrinogen.

29. The method of claim 17, wherein the second composition comprises one or more of enzymes, ions, growth factors, and biologic agents.

30. The method of claim 29, wherein the second composition comprises thrombin and calcium.

31. The method of claim 17, wherein the method is performed in conjunction with at least one additional therapy for treating aneurysms.

32. The method of claim 31, wherein the additional therapy is an aneurysm packing treatment.

33. A method of producing a neoendothelium comprising:

identifying an aneurysm;

endovascularly administering to the aneurysm an effective amount of a first composition comprising a matrix material and a second composition, such that the first and second compositions remain separate during the administration and wherein at least one of the first and second compositions comprise cells, and

mixing the first and second compositions at the location of the aneurysm to form a polymer scaffold comprising said cells.

34. The method of claim 33, wherein the endovascular administration is performed via one or more microcatheters.

35. The method of claim 33, wherein the scaffold is placed across an ostium of the aneurysm.

36. The method of claim 33, wherein the cells expand and migrate out of the polymer scaffold to the surrounding tissue.

37. The method of claim 33, wherein the cells are autologous cells.

38. The method of claim 37, wherein the cells are selected from the group consisting of vascular cells, endothelial cells and stem cells.

39. The method of claim 38, wherein the cells are endothelial cells.

40. The method of claim 36, wherein the cells form a confluent layer.

41. The method of claim 40, wherein the confluent cell layer is integrated into the existing cell wall.

42. The method of claim 41, wherein the integrated, confluent cell layer forms a neoendothelium across the ostium.

43. The method of claim 33, wherein the matrix material comprises one or more matrix materials selected from the following: fibrin, fibrinogen, collagen, polyorthoesters, polyvinyl alcohol, polyamides, polycarbonates, polyvinyl pyrrolidone, marine adhesive proteins, cyanoacrylates, analogs, mixtures, combinations and derivatives of the above.

44. The method of claim 43, wherein the matrix material comprises fibrinogen.

45. The method of claim 33, wherein the second composition comprises one or more of enzymes, ions, growth factors, and biologic agents.

46. The method of claim 45, wherein the second composition comprises thrombin and calcium.

47. The method of claim 33, wherein the method is performed in conjunction with at least one additional therapy for treating aneurysms.

48. The method of claim 47, wherein the additional therapy comprises an aneurysm packing treatment.

49. An endovascular device comprising a microcatheter that comprises two cannulae, wherein one cannula contains a composition comprising a matrix material and all other compositions are contained within the second cannula, such that the composition comprising the matrix material remains separate until administration.

50. The endovascular device of claim 49, wherein the first and second compositions are delivered simultaneously.

51. A method of increasing endothelialization across an aneurysm ostium comprising:

identifying an aneurysm;

endovascularly administering to the aneurysm an aneurysm maintenance device, wherein the device is coated with a biocompatible material comprising cells;

and forming a polymer scaffold comprising said cells.

52. The method of claim 51, wherein the endovascular administration is performed via one or more microcatheters.

53. The method of claim 51, wherein the cells expand and migrate out of the biocompatible material to the surrounding tissue.

54. The method of claim 51, wherein the cells are autologous cells.

55. The method of claim 54, wherein the cells are selected from the group consisting of vascular cells, endothelial cells and stem cells.

56. The method of claim 55, wherein the cells are endothelial cells.

57. The method of claim 53, wherein the cells form a confluent layer.

58. The method of claim 57, wherein the confluent cell layer is integrated into the existing cell wall.

59. The method of claim 58, wherein the integrated, confluent cell layer forms a neoendothelium across the ostium.

60. The method of claim 51, wherein the biocompatible material comprises one or more matrix materials selected from the following: fibrin, fibrinogen, collagen, polyorthoesters, polyvinyl alcohol, polyamides, polycarbonates, polyvinyl pyrrolidone, marine adhesive proteins, cyanoacrylates, hydrogels, vicryl suture, Tisseel, and analogs, mixtures, combinations and derivatives of the above.

61. The method of claim 60, wherein the biocompatible material additionally comprises one or more of enzymes, ions, growth factors, and biologic agents.

62. A method of decreasing or eliminating coil compaction comprising:

identifying an aneurysm;

endovascularly administering to the aneurysm an effective amount of a first composition comprising a matrix material and a second composition, such that the first and second compositions remain separate during administration and wherein at least one of the first and second compositions comprise cells;

mixing the first and second compositions at the location of the aneurysm to form a polymer scaffold comprising said cells.